

**REMARKS**

**STATUS OF CLAIMS**

Claims 3-18 are pending.

Claims 3-15 and 18 are rejected under 35 USC §102(b) as being anticipated by Ohsawa (U.S. Patent 4,876,610).

Claims 16-17 are rejected under 35 USC §103(a) as being unpatentable over Ohsawa in view of Graham (U.S. Patent 5,222,154).

Claims 3 and 18 are amended, new claim 19 is added, and, thus, claims 3-19 remain pending for reconsideration, which is respectfully requested.

No new matter has been added in this reply. The forgoing rejections are hereby traversed.

**REJECTIONS UNDER 35 U.S.C. §102 and 103**

*Claims 1-15 and 18 are rejected under 35 U.S.C. §102(b) as being anticipated by Ohsawa (U.S. Patent 4,876,610). Claims 16-17 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ohsawa in view of Graham (U.S. Patent 5,222,154).*

**Ohsawa**

Ohsawa is relied upon to reject the independent claims 3 and 18.

In Ohsawa, the discrimination means discriminates characters and screen dots from photographs and background by comparing the absolute value of difference in density between the central pixel and surrounding pixels with a threshold value. See, Ohsawa, FIGS. 5a and 5b and Column 4, lines 35-54, which is relied upon by the Examiner to reject independent claims 3 and 18. In particular, in the Response to Arguments of the final Office Action, page 12, item 7, the Examiner reiterates that Ohsawa, column 4, lines 42-45 and 60-66 discloses the present claimed invention's "deleting corresponding information from the halftone dot image area map when the halftone dot density does not meet a given condition." However, the Applicants respectfully assert that as discussed in the previous Amendment, the present claimed invention differs from Ohsawa's discrimination circuit 13 as described in FIGS. 5a and 5b and column 4, lines 35-54. And independent claims 3 and 18 are amended to clearly recite the patentably distinguishing features of the present claimed invention over Ohsawa, as follows.

In contrast to Ohsawa, the present claimed invention as recited in independent claims 3 and 18, using the recitation of claim 3 as an example, provides,

a halftone dot image area map creating unit ~~searching for~~  
controlling the image processing apparatus according to a  
process, comprising:

recognizing a halftone dot image area ~~that may be~~  
in the multi-valued image,

creating a halftone dot image area map,

~~including~~generating a list storing at least one of  
center-of-gravity information about centers of gravity of halftone  
dots and boundary box information, as information about each  
halftone ~~dots~~dot in the recognized halftone dot image area,

calculating a halftone dot density in a given area by  
referring to the center-of-gravity information, and

deleting corresponding halftone dot information  
from the halftone dot image area map and the halftone dot  
information list, when the halftone dot density does not meet a  
given condition;

a halftone dot image binarizing unit that binarizes  
an input image corresponding to the halftone dot image area map  
as corrected by the deleting, while suppressing input read ~~error~~  
~~that may occur~~errors occurred when said input unit ~~inputs~~input the  
binary image, and generates a binarized halftone dot image; ...

The claim amendments clarify that in the present invention the halftone dot image area is recognized from a multi-valued image, and after such halftone dot image area recognition, the halftone dot image area map character unit performs "deleting corresponding halftone dot information from the halftone dot image area map and the halftone dot information list, when the halftone dot density does not meet a given condition," which has a benefit of eliminating erroneously recognized halftone dot(s). Therefore, the halftone dot image map creating unit of the present invention can efficiently and effectively detect erroneously recognized halftone dots due to noise or dust. See, page 9, lines 9-26, of the present Application. In particular, a benefit of the claimed invention is to delete erroneously recognized halftones, because of erroneous recognition of noise or dust on the image (page 9, line 27 to page 10, line 27 of the present Application).

Ohsawa discloses a discrimination means for discriminating characters and screen dots, or photographs and background from a multi-value image, and obtaining a reproduced image. But Ohsawa does not contemplate or suggest at all that there is a possibility that a halftone dot may be erroneously recognized, and Ohsawa does not disclose or suggest detecting an

erroneously recognized halftone dot. In other words, Ohsawa's discrimination circuit 13 (see Ohsawa's FIG. 1), which is relied upon by the Examiner, only recognizes a halftone dot image area based upon the method described in column 4, lines 35-54 and FIGS. 5a and 5b, to control the switch 16 to control appropriate binarization by the first or second binarization units 14 and 15. More particularly, Ohsawa's discrimination results of "0" or "1" are for recognition of characters and screen dots (edge area) or for recognition of photographs and background (non-edge area), which clearly differs from the present claimed invention's, "including generating a list storing at least one of center-of-gravity information about centers of gravity of halftone dots and boundary box information, as information about each halftone ~~dots~~dot in the recognized halftone dot image area, ... and deleting corresponding halftone dot information from the halftone dot image area map and the halftone dot information list, when the halftone dot density does not meet a given condition" (e.g., amended independent claim 1).

Support for the claim amendments can be found, for example, in page 9, line 9 to page 10, line 27, and FIGS. 2 and 3, of the present Application.

Also, in the Response to Arguments, page 13, item 10, of the final Office Action, the Examiner reiterates that Ohsawa column 3, lines 15-20 discloses the present claimed invention's, "**binarizes** an input image corresponding to the halftone dot image area map ... **while suppressing input read errors occurred when said input unit input the binary image**" (e.g., claim 1, emphasis added). The Examiner in page 13, item 10, of the final Office Action, asserts:

Shading correction is a correction of input read error that occurs during binarization. The initial inputting of the digital image data and the shading correction of said input data occurs as part of the input process since said input and shading corrections occur before the image area mapping and discrimination, as shown in Figure 1 of Ohsawa.

Therefore, it appears that the Examiner acknowledges that according to Ohsawa's FIG. 1, the processing of correction circuit 12 is before the first and second binarization units 14 and 15, such that Ohsawa cannot disclose or suggest the present claimed invention's, "**binarizes** an input image corresponding to the halftone dot image area map ... **while suppressing input read errors occurred when said input unit input the binary image**" (e.g., claim 1, emphasis added). Therefore, Ohsawa performs shading correction before binarization, and binarization without regard to errors during the binarization as shown in FIG. 1 of Ohsawa. In contrast to Ohsawa, claim 3 recites, "**binarizes** an input image corresponding to the halftone dot image area map **as corrected by the deleting while suppressing input read errors occurred when**

**said input unit input the binary image.”** In other words, neither of Ohsawa’s FIG. 1 binarization units 14 and 15 perform the present claimed invention’s, “**binarizes ... while suppressing input read errors occurred when said input unit input the binary image.”** Support can be found, for example, in page 8, lines 9-25, and page 16, line 7 to page 17, line 27 of the present Application.

In view of the amendments and remarks, Ohsawa fails to disclose the patentably distinguishing features of independent claims 3 and 18, and, thus, Ohsawa does not anticipate amended independent claims 3 and 18. Further, the invention set forth in dependent claims 16 and 17 cannot be considered obvious from a combination of Ohsawa and Graham, at least due to their dependency from amended independent claim 3.

#### **NEW INDEPENDENT CLAIM 19**

New independent claim 19 provides an alternative recitation of the present invention. In contrast to Ohsawa, based upon the forgoing arguments traversing the outstanding anticipatory rejection of independent claims 3 and 18, the present claimed invention as recited in new independent claim 19 provides:

19. (NEW) An apparatus, comprising:
  - an input unit to read a binary image as a multi-valued image; and
  - a programmed computer processor controlling the apparatus according to a process comprising:
    - recognizing a halftone dot image area ...;**
    - generating a list** storing at least one of center-of-gravity information about centers of gravity of halftone dots and boundary box information, **as information about each halftone dot in the recognized halftone dot image area;**
    - calculating a halftone dot density in a given area by referring to the center-of-gravity information;**
    - deleting corresponding halftone dot information from the halftone dot image area and the halftone dot information list, when the halftone dot density does not meet a given condition;** and
    - binarizing** the recognized halftone dot image area as **corrected by the deleting, while suppressing input read errors occurred at a time of the inputting of the binary image** and generating a binarized halftone dot image (emphasis added).

**CONCLUSION**


In view of the claim amendments and the remarks, withdrawal of the rejections of claims 3-18 and allowance of claims 3-18 and new claim 19 is respectfully requested.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

Respectfully submitted,  
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